later of cardiac failure. We advise strongly against operation in all cases presenting this lesion in the electrocardiogram.

Herrick and Smith, in 1922, reported their clinical observations on a series of thirty-five cases in which the probable diagnosis of bundle-branch block was made from the electrocardiogram. Their notes very closely approximate our findings.

These lesions of the myocardium, involving one of the main branches of the bundle of His, are extremely important from the standpoint of prognosis. The mortality is very high in all reported series of cases. Willius states the death rate is aproximately 70 per cent within a period of three years from the discovery of the lesion. Sudden death is not uncommon. It is hoped that further clinical experience will give more data on which we can at least base a probable diagnosis. It is unfortunate that the electrocardiograph is the only means of definitely showing this pathology *intra vitam*. However, with the increasing use of this instrument, more cases will be brought to light and further associated clinical evidence enhance our existing knowledge of this most interesting condition.

DISCUSSION

GEORGE DOCK, M. D. (Security Building, Pasadena)—Those who still believe that the string galvonometer is of use only for experimental purposes will be much interested in the practical paper of Doctor Granger. His observations are quite in line with those of others in different parts of the world, and show that in a class of cases not entirely rare an accurate diagnosis can be made by the study of electrocardiograms. Judging from experience with other cardiac anomalies, there is reason to think that those who study patients with the aid of the galvonometer will be able to recognize bundle-branch block with considerable accuracy by the clinical examination. By the wider use of apparatus and the installation of a string galvonometer in every hospital, the use of the method will be widely available.

GORDON E. HEIN, M. D. (University of California, San Francisco)—Distortions of the primary ventricular complex are of great interest and their recognition of definite help in prognosis. Classifying these deformities as to the part of the ventricular conducting system involved is sometimes difficult. As is emphasized in Doctor Granger's series, the length of life of patients showing this electrocardiographic picture is usually short. Of nineteen patients reported by Heard and myself in 1920, almost one-half were dead before four years had elapsed. Two patients were alive four years after the original electrocardiogram had been taken. The average age of our patients was 57 years, and most of them showed evidence of disease of the cardiovascular renal system. In most instances there was sufficient clinical evidence to enable one to make a diagnosis of serious cardiac disease, but we also had exceptions to this rule, and these exceptions emphasize the need of more frequent recourse to the electrocardiogram. A curious phenomenon noted by us was the persistence of a given form of deformity for a period of years.

HOWARD F. WEST, M. D. (1032 West Eighteenth Street, Los Angeles)—Doctor Granger has shown that but one symptom—dyspnoea—was a constant finding among the patients in his series, and that physical findings of organic cardiac disease occurred with much less constancy and consistency. These facts, associated with the serious prognostic importance of this type of electrocardiogram, offer the most important argument for a wider use of the string galvanometer. If more patients beyond the fourth decade contemplating surgical operations were studied by this method, much light would be thrown, I believe, upon the poor response many patients make to anesthesia and operative procedures. These studies are of important clinical value, and should stimulate a wider use of the galvanometer.

JOHN J. SAMPSON, M. D. (University of California Hospital, San Francisco) — It is remarkable that a sign, namely, bundle-branch lesions, to which such serious prognostic import is given, should present the numerous exceptions as 30 per cent in Willius' series, 32 per cent in Granger's series, and 55 per cent in the cases followed at the University of California Hospital.

The value of the electrocardiogram in the discovery of suspected myocardial damage is not doubted. It is in such cases as the eight with dyspnoea alone that the electrocardiogram is of greatest value through its confirmatory evidence of questionable pathology.

The emphasis placed on any such particular sign as an absolute index of prognosis in heart disease seems an error. It is more rational to evaluate such definite evidence of cardiac damage as one would true angina or cardiac dyspnoea—naturally of serious import and a warning worthy of a regime guarding against heart strain, but in estimation of immediate prognosis, chiefly of importance in its association with other evidences of myocardial insufficiency.

Dyspnoea was uniformly present in Granger's series of cases, certainly a substantial clinical warning of possible myocardial damage.

It is interesting to note that in the University of California series, 87 per cent of those dying died within one year of the time of the discovery of the lesion; whereas, of those at present living with the lesion 80 per cent have had it for a period of over one year.

In agreement with Hein, I find that the diagnosis of the exact type of conduction system lesion is not simple, in that one or more of the criteria of Carter or Lewis frequently are ill-defined. The relatively high proportion of these borderline lesions is demonstrated in the 3550 electrocardiograms at the University of California Hospital. There were thirteen characteristic left bundle-branch blocks, sixty-six characteristic right bundle-branch blocks, whereas there were eighty-two atypical records.

CLINICAL PICTURE OF BEGINNING CARCINOMA OF THE STOMACH

WITH ANIMADVERSIONS ON X-RAY ILLUSIONS IN GASTRO-INTESTINAL DISEASE

By HARRY I. WIEL *

DISCUSSION *by Harold Brunn, San Francisco, and G. Y. Rusk, San Francisco.*

CANCER of the stomach, more than any other form of cancer, is characterized by the baffling feature of the absence of definite criteria by which it can be diagnosed in its infancy. The tragedy of the situation always has been that the earliest positive diagnosis has been arrived at when the lesion was so well established that a hopeless course has been inevitable. Our quest has been, not only some means of cure, but the discovery of manifestations that would enable us to recognize the disease in its incipiency.

I have had one patient who was proved by surgical operation and histoligical findings to have carcinoma of the stomach actually in its very first stages. The uniqueness of this experience makes its reporting worth while. And without attempting to generalize from one experience, it may be profitable to attempt in this solitary instance to discover some sign or symptom which differentiated this earliest

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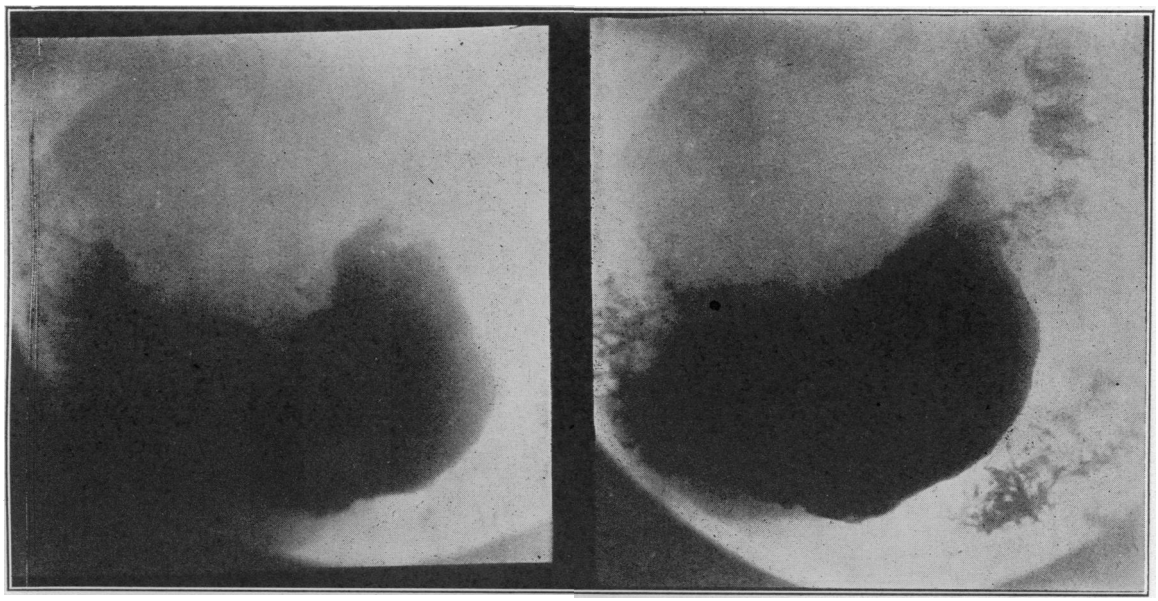


No. 2
Radiogram, taken three days later with patient thoroughly atropinized, showing same phenomenon.

No. 1
Radiogram, showing large pyloric defect and almost total absence of duodenum.

stage of cancer of the stomach from those usually seen.

CASE REPORT

This patient has been under my observation for thirteen years for whatever medical attention he has needed. He was a single man of 64 at the time his stomach disease developed. The family history records much arteriosclerosis, but the patient gave no evidences of it, in spite of his chronic gout, which he had had intermittently and severely for over twenty years. In his youth he had had several attacks of gonorrhea, but there was no history of lues, nor was a positive Wassermann ever obtained. In 1912, twelve years before the onset of the present illness, Hugh Young removed a benign papilloma from his bladder. Six years ago Harold Brunn operated upon him for a bursitis of the left subdeltoid bursa. Three years ago he was under the care of Walter Baldwin for an osteoperiostitis of the lower lumbar vertebrae and the greater trochanter of the right femur.

Present Illness — (This is purposely given in detail directly from my records.)—September 3, 1924. During the last three years the patient has been in good health, and there has been no occasion for me to see him professionally. About a year ago he noticed that if he ate freely of fruit he got "indigestion." He, therefore, abstained from fruit and was troubled no further. About six weeks ago he began to have pain under the lower portion of the "breast bone." He considered this due to indigestion. He decided that these "gas pains" were more a sense of pressure than anything else, combined with a sense of tightness. This pain has persisted, sometimes being distressing, and radiates to either side of the lower chest, but never to either arm. He has also had considerable pain across the shoulders, but he does not connect this with the pain across the front. With these pains and discomforts is associated a desire to belch, and if he succeeds in belching the pain is relieved. Five nights ago he had a sudden attack of pain, and for the first time it was associated with vomiting. Vomiting gave some relief, but he noticed that the vomitus contained stuff that looked like coffee-grounds. Has noticed no black or tarry stools. He has lost ten pounds in two months, but more than that notices a most alarming loss of strength and "pep." No shortness of breath nor swelling of the feet.

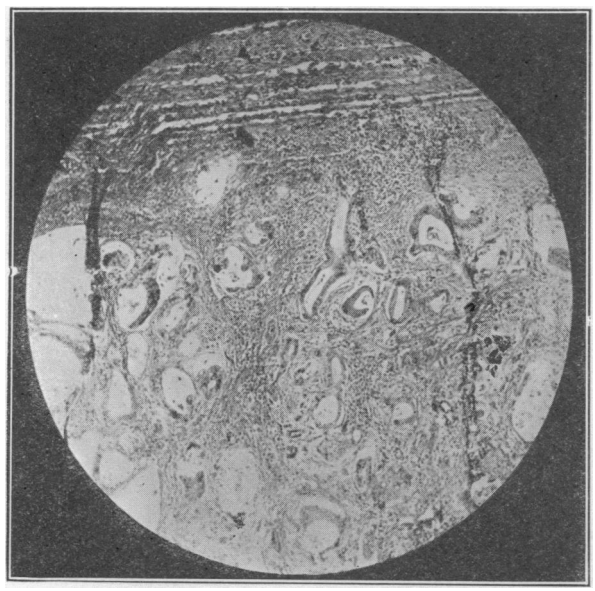
Status—The patient is strikingly cachectic in marked contrast to his usual look. However, his mucous membranes are not anemic. Pupils normal. No abnormal lymphatic nodular enlargements, and particularly no Virchow nodule is made out. Lungs normal. Heart normal size. Sounds are all of good quality. Over the aortic region is a slight systolic murmur, probably an aortitis. Pulse not noteworthy. Abdomen full, but decidedly not so full as it has been in the past. He has always been pot-bellied, but now the "pot" is gone. The right upper quadrant is definitely tighter than elsewhere, and there is some tenderness here, but no definite mass is made out. Reflexes normal. Urine normal. Stool strongly positive for occult blood (meat-free diet), and this finding was constant on the many occasions the stool was examined. Blood count normal (red blood corpuscles, 4,850,000; Hemoglobin, 95 per cent). Gastro-intestinal x-ray studies, made two days later, showed a large lesion of the antrum, just inside the pylorus. This involved the entire distal third of the stomach. To enclude spasm, the patient was thoroughly atropinized for three days, and the x-ray was then repeated. Findings were the same.

A. W. Hewlett and Harold Brunn agreed with me that the patient had definitely a cancer of the stomach, and that the lesion, judging from the x-ray findings, was probably of such an extent as to make it inoperable. Nevertheless, operation was decided upon on the chance that conditions might not be found so untoward, and at any rate to do a gastro-enterostomy to forestall a possible oncoming obstruction—in other words, a palliative measure.

Two days after the last radiograms Brunn did a laparotomy. The upper abdomen showed very few adhesions, and no tumor mass was visible. Just inside the pylorus, however, could be felt a small, hard tumor about 9 mm. in diameter, which was resected with the entire pylorus. The stomach was closed and a gastro-enterostomy done. One very small mesenteric gland was made out in exploring the abdomen. This gland was excised, and under the microscope showed nothing but inflammatory tissue. The tumor, as you can see by the illustration, was a typical adeno-carcinoma, with the carcinoma cells going no further than the mucous lining of the stomach.

Glanville Rusk, pathologist, assured me that he had never seen or heard of a cancer of the stomach in so early a stage and still strictly limited to the mucous layer. It must have been in its very beginning. At the time of this writing (May, 1925), it is now nine months since the operation and the patient is normal in every way as far as we can discover.

Now, what is there about this case which is so definitely a beginning cancer of the stomach which distinguishes it from other cancers of the stomach? The sad answer is, nothing. The history is typi-



No. 3
Microscopical appearance of tumor, showing carcinoma strictly limited to mucous membrane.

cally that of the usual patient we meet, and if one can judge at all from this patient, one would have to say that the clinical picture of beginning carcinoma of the stomach is the same as in the more advanced stage of the disease.

More disappointing than that, however, is the manner in which the x-ray findings failed us. Too often we are prone to regard the x-ray findings as matters positive beyond dispute, especially when taken in connection with the clinical and laboratory examinations. I maintain that we are entirely too smug in our acceptance of radiological dicta, and I think I am safe in speaking for the radiologists themselves in this matter. There are still unexplored fields in interpretations of x-ray photographs. I should not attempt an explanation of the paradoxical x-ray findings in this case, but it has fixed me in the attitude that in radiology, at any rate, one cannot always believe one's own eyes.

This attitude had been started by previous experiences of a similar nature, which are here summarized:

A man, age 52, with symptoms and clinical findings of duodenal ulcer. X-ray findings: "Duodenal cap of small size, hazy in outline, with an irregular filling defect on the medial surface. Conclusion: Duodenal ulcer." X-ray findings three years later: "Duodenal cap shows persistent contraction in the middle third; is never well outlined. Conclusion: Duodenal ulcer."

On the strength of the increase in symptoms (following medical treatment they cleared up temporarily) and the constancy of the x-ray findings after three years the patient was operated upon. At operation a small whitish scar was discovered just at the duodenal side of the pyloric ring. This was not definite enough to be able to say surely that it was the scar of an old ulcer. One could say, with certainty, that it could not possibly have given the duodenal deformity seen in the radiogram. The duodenum itself was easily mobilized and nowhere had adhesions. The gall-bladder was normal and free from adhesions. The patient's post-operative course was completely satisfactory, and he has had no return of his symptom. It should be added that when the duodenum was opened at operation a very small red area was found on its posterior surface. Harold Brunn, who operated, could not be certain that this was not traumatic. This area was excised (it was about 2 mm. in diameter) and Rusk reported that under the microscope it showed a subacute duodenitis.

When all is said and done it is perfectly apparent that this report has been iconoclastic in the extreme. All I seem to have accomplished is to add to my despair and perhaps to detract from the faith in an instrument that is so valuable, but which still needs improvement. Nevertheless, one very strong ray of light shines brightly through the gloom. This patient was actually cured by surgery of a disease which has been hitherto tacitly accepted as hopeless, and this one experience may help us feel certain that cancer of the stomach found in its very beginning is curable. Then remains the problem how to find it in its infancy, and that problem those who come after us may solve.

DISCUSSION

HAROLD BRUNN, M. D. (Fitzhugh Building, San Francisco)—The case recorded by Wiel is of considerable interest, especially from the standpoint of early diagnosis and operation for cancer of the stomach. It seems remarkable that in the numerous fluoroscopic and x-ray examinations made of the gastro-intestinal tract that we do not more often come across by chance an early, perhaps unsuspected, carcinoma of the stomach. I have never, however, been so fortunate.

The following case illustrates the earliest case that it has been my good fortune to operate upon, but here there were definite stomach symptoms which demanded examination. Before operation, because of the large defect at the pylorus, we felt that the case would probably be inoperable, as is so often our experience. However, on exposing the stomach we found a mass at the pyloric orifice which was very difficult to diagnose by palpation. There was no dimpling of the serosa. The mass seemed to be, in the mucosa, rather soft in consistency, and we thought it very likely to be polypoid in nature. Because of our indecision as to the nature of the growth, we first made a transverse incision across the pylorus to expose it. There then appeared a mass about the size of a hazel nut that did not seem to be definitely infiltrating. The opening of the stomach was closed, and then a resection of the stomach was made quite wide of the growth. In doing this a single gland was found near the head of the pancreas which we thought was probably carcinomatous, but proved on microscopic examination to be entirely free of any cancer cells. We have, therefore, in this case a reasonable hope that recurrence will not take place.

Dr. Wiel I feel, however, is too optimistic after nine months' apparent cure to prognosticate the future of his case.

GLANVILLE Y. RUSK, M. D. (University of California Hospital, San Francisco)—In regard to the remarkable case of carcinoma which Wiel is reporting, I might add that, from a pathological point of view, I hardly consider that the term adenocarcinoma adequately describes the lesion found. It is of colloid carcinoma type, and the degree of desmoplastic reaction is also striking. Whether this differentiation in type is of significance in relation to the interesting x-ray findings or not is for further observations to determine.

DOCTOR WIEL (closing)—Dr. Brunn seems to have been misled as to the degree of confidence with which I have prognosticated the future of this patient. I should like to add, however, that at the date of this note (January 18, 1926), sixteen months after the operation, the patient remains free from symptoms, and his physical examination reveals nothing to indicate a recurrence.